

Another New Species of the Urocoptid Land Snail Genus *Hendersoniella* (Pulmonata, Urocoptidae, Holospirinae) from Northeastern Mexico

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Abstract. *Hendersoniella miquihuanae* sp. nov. (Pulmonata, Orthalicoidea, Urocoptidae) is described from high altitudes in limestone hills to the east of the Sierra Los Soldados in the state of Tamaulipas, Mexico. The genus is unique within the family by having a discoidal shell. All other genera have elongate-conical or cylindrical shells. *Hendersoniella* includes five species, each of which has a very limited geographic distribution in northeastern Mexico: *H. miquihuanae* sp. nov.; *Hendersoniella palmeri* (Dall, 1905); *Hendersoniella christmani* Thompson & Correa, 1991; *Hendersoniella lux* Thompson & Correa, 1991; and *Hendersoniella chonomphix* Thompson & Correa, 1991. The taxonomic status of the latter species is elevated from that of a subspecies of *H. lux*.

INTRODUCTION

Hendersoniella Dall, 1905 is confined to submesic and mesic mountain habitats at intermediate to high altitudes in northeastern Mexico (Figures 1, 8). Four species have been described: *Hendersoniella palmeri* (Dall, 1905); *Hendersoniella christmani* Thompson & Correa, 1991; *Hendersoniella lux* Thompson & Correa, 1991; and *Hendersoniella chonomphix* Thompson & Correa, 1991. The genus was reviewed recently by Thompson & Correa (1991). Previous to now the genus was known from the west slope of the Sierra Madre Oriental in the states of San Luis Potosí and from Nuevo León. Three species occur in San Luis Potosí and one occurs in Nuevo León. Each has a very limited geographic distribution, as is typical for species in the urocoptid subfamily Holospirinae. The discovery of a new species in Tamaulipas extends the known range of the genus to the east slope of the Sierra Madre Oriental and east of its recorded distribution. The novelty is geographically separated from *H. christmani* by 190 km to the north-northwest in Nuevo León. It is separated from the other three known species by about 200 km to the south-southwest in San Luis Potosí. Altitudinal distributions for *Hendersoniella* are as follow: *H. palmeri*, 2550 m; *H. lux*, 2150–2300 m; *H. chonomphix*, 1700 m; *H. christmani*, 1350–1900 m; and *H. miquihuanae* sp. nov., 2850 m.

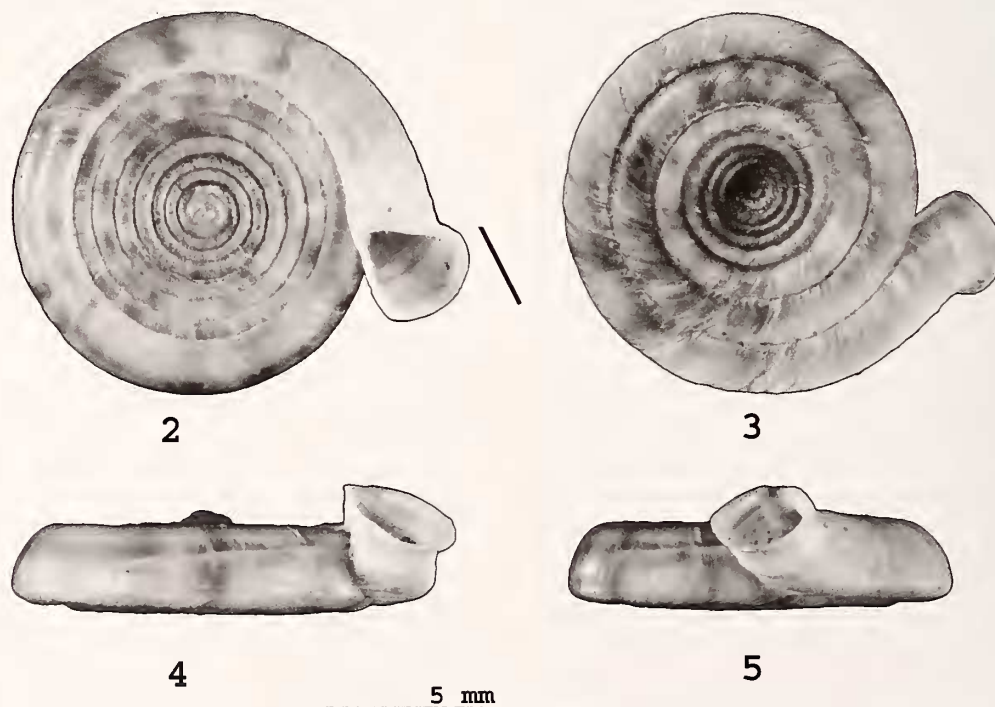
Hendersoniella miquihuanae Thompson & Correa-Sandoval sp. nov.

(Figures 2–7)

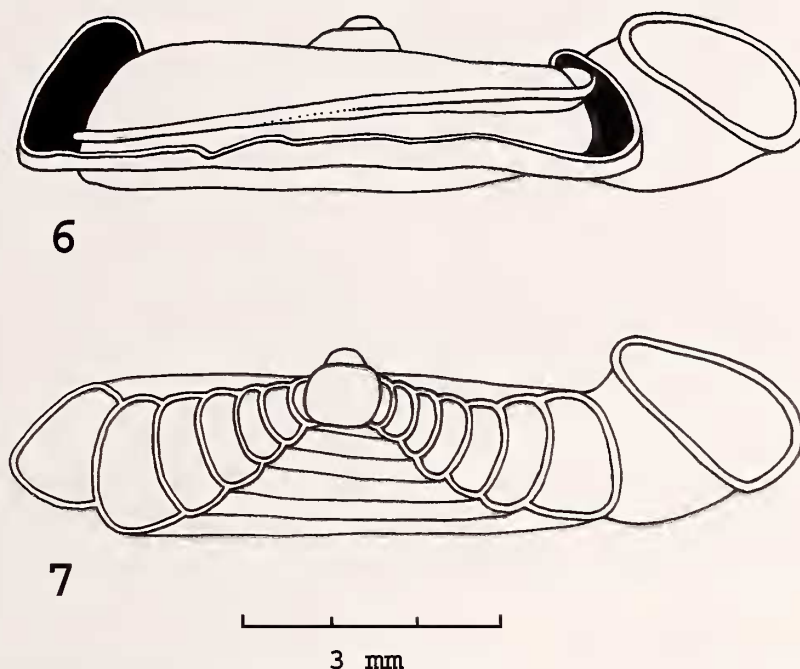
Description: The shell is discoidal in shape; thin-walled; medium sized, 7.0–8.8 mm wide behind the neck of the aperture; consisting of 9.0–9.4 whorls. The color is light gray with alternating diaphanous patches in fresh specimens. The peristome and the interior of the aperture are opaque white. The first 1.5 whorls are raised slightly above the discoidal plane of the shell (Figure 4). The last whorl ends in a neck that is deflected dorso-laterally (Figures 4, 5). The neck is moderately long, and is semitriangular in cross-section. It is directed dorso-laterally so that the aperture extends upward above the last whorl (Figure 4). The neck lacks a longitudinal impressed dorsal furrow, in contrast with other species of *Hendersoniella*. The aperture is pear-shaped as in *H. lux*. The plane of the aperture lies at an angle of about 45° oblique to the dorsal surface of the shell (Figure 5). The longitudinal axis of the aperture is aligned at an angle of about 30° to the center of the shell (black line, Figure 2). The last two whorls of the base are flat; the last whorl may ascend above the level of the penultimate whorl in some specimens (Figure 7, cross-section of shell). The



Figure 1. *Hendersoniella miquihuatae* sp. nov. Habitat at the type locality viewed toward the east.



Figures 2–5. *Hendersoniella miquihuanae* sp. nov., holotype, UF 415967. Figure 2. Dorsal side of shell; black bar on right shows the alignment of the axis of the aperture. Figure 3. Base of shell. Figure 4. Frontal view showing the projection of the neck and the inclination of the aperture. Figure 5. Lateral view of shell.



Figures 6–7. *Hendersoniella miquihuanae* sp. nov. Figure 6. Position of the columellar lamella within the last whorl (paratype, UF 388796). Figure 7. Transverse section through shell (paratype, UF 388596).

umbilicus is deep and funnel-shaped, and is bounded by the penultimate whorl (Figure 7). The umbilicus is about 0.36–0.44 times the width of the shell as measured across the inner perimeter of the penultimate whorl. The shell contains 9.0–9.4 whorls, and is about 7.0–8.8 mm wide. The periphery of the shell is obtusely angular and lies at the base of the last whorl (Figures 4, 5). The supraproperipheral side of the last whorls is nearly flattened. The whorls are more rounded on the ventral surface, although the outermost two whorls of the base are nearly flat. The first two whorls are smooth. The following whorls are sculptured with irregular, and sometimes white, incremental striations, which are more strongly developed around the neck of the aperture. The suture is moderately impressed on the dorsal surface, and is more deeply impressed on the ventral surface. The strong columellar lamella is visible through the shell (Figures 4, 5). It is about one whorl in length, high, deeply immersed, curving dorsally, and almost touching the dorsal wall of the last whorl (Figure 6). The anterior end of the columellar lamella terminates at one-third of a whorl behind the aperture. It is marked with longitudinal white lines.

Measurements based on the holotype and 14 paratypes (Florida Museum of Natural History [UF] 388550) selected to show variation are shown in Table 1.

Type locality: Tamaulipas, Municipio de Miquihuana, road to Nuevo León, east of the Sierra Los Saldados,

7.8 km NW of Valle Hermosa, 23°42'07"N, 99°49'36"W; 2735 m alt. Holotype: UF 415967; collected October 25, 2007, by Alfonso Correa-Sandoval. Paratopotypes: UF 388532 (7), February 21, 2006; UF 388544 (3), February 21, 2006; UF 288546 (11), May 11, 2006; UF 338547 (1), May 11, 2006; UF 388548 (5), May 11, 2006; UF 388550 (14), August 30, 2006.; UF 420746; October 25, 2007 (5).

Additional specimens are deposited in the UF; the Instituto de Biología, Universidad Nacional Autónoma de México; and in the Instituto de Tecnológico de Ciudad Victoria.

The type locality lies in limestone hills that are dominated by a sparse submesic shrub forest consisting of palms, small oaks (*Quercus* sp.), *Yucca* sp., and izotal (*Dasyllirion* sp.), with an understory of patches of lechuguilla (*Agave lechuguilla*), occasional cactae, and herbaceous vegetation (Figure 1). Annual precipitation averages 500 mm (INEGI, 1985). Snails were found in limestone crevices under loose rocks and talus, but they were not uniformly distributed over the immediate area of the type locality, nor were any found at other nearby localities that appeared to have appropriate habitat. *Hendersoniella miquihuanae* was associated with another urocoptid, *Propilsbrya* sp., and a spiraxid, *Guillarmodia* (*Proameria*) sp.

Comparisons: The shell is discoidal as is *H. palmeri* (Dall, 1905) with a very flattened dorsal surface in which only the embryonic whorls protrude above the

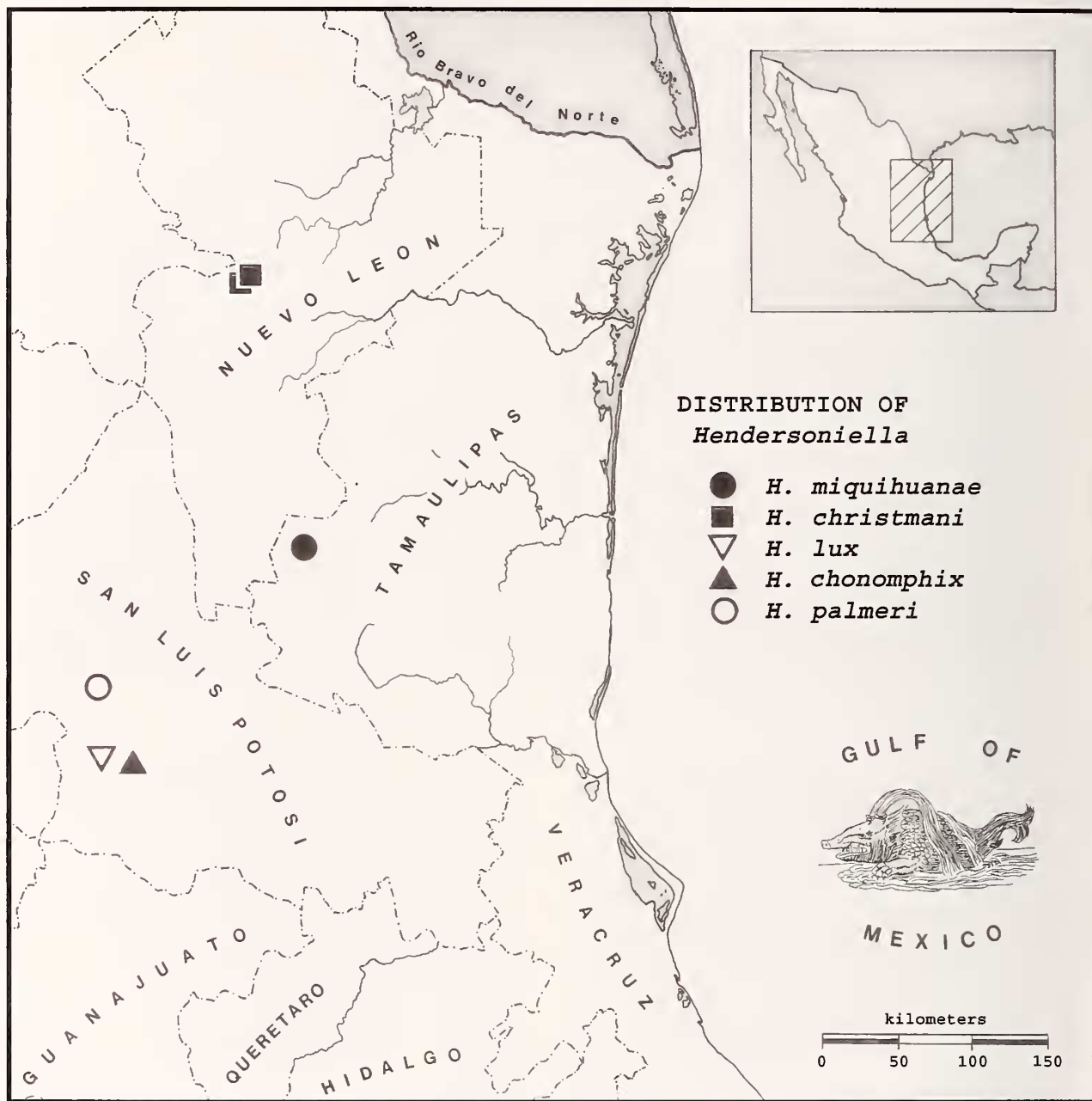


Figure 8. Distribution of *Hendersoniella* in northeastern Mexico.

planes of the last whorl. The periphery is obtusely angular at the base of the last whorl. In other *Hendersoniella* the periphery is acutely angular in comparison (Thompson & Correa, 1991). In *H. christmani* the periphery lies at the base of the last whorl, as it does in the new species. In *H. lux* and *H. palmeri* the periphery lies at or above the middle of the last whorl. The neck of the aperture projects upward

beyond the level of the apical whorl, in contrast with *H. palmeri*, in which the aperture projects dorso-laterally, but not above the level of the last whorl. In *H. lux* and *H. christmani* the aperture projects dorsally, as it does in the new species. The aperture is pear-shaped with the longitudinal axis lying at about 30° to the transverse axis of the shell, similar to *H. christmani*. In *H. palmeri* and *H. lux* the longitudinal axis of the aperture is

Table 1

Measurements based on the holotype and 14 paratypes (UF 388550) of *Hendersoniella miquihuanae*.

Specimen	Height	Width	Umbilicus	Whorls	$\mu\text{m}/\text{width}$
Holotype	2.1	8.1	3.1	9.3	0.42
Paratypes					
Minimum	1.8	7.0	2.8	9.0	0.36
Maximum	2.4	8.8	3.5	9.6	0.47
Mean	2.13	8.13	3.37	9.25	0.40
STD	0.17	0.56	0.31	0.23	0.03

tangential to the spire. The columellar lamella is about one whorl in length, thereby being more than twice as long as it is in other *Hendersoniella*. The shell wall is thinner than it is in other species.

Earlier we referred to the internal lamella as the parietal lamella (Thompson & Correa, 1991). We now consider the structure to be the columellar lamella. The columellar lamella is a basic structure in most other genera of the Holospirinae. Those species that possess internal lamellae always have a columellar lamella, and the columellar lamella, when present, is the first to develop ontogenetically (Thompson & Mihalcik, 2005). In *Hendersoniella* the lamella occupies the same relative position within the shell as does the columellar lamella in other genera, and it is the only lamella to develop.

Previously we treated *Hendersoniella chonomphix* as a subspecies of *H. lux*. *Hendersoniella lux* has a well-developed columellar lamella. *Hendersoniella chonomphix* lacks such a structure. Because of its absence we now consider this trait to be specifically significant, and

we treat *H. chonomphix* as a specific species from *H. lux*.

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